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Khalil Dindarian

Embracing the Black Swan

How Resilient Organizations Survive and Thrive in the face of Geopolitical and Macroeconomic Risks

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Berlin, Germany

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To all who are walking or are planning to walk the same path as I, I say, go for it! You will never regret the efforts you make, but you will forever rue those you didn't. To anyone who has ever done anything to make our world a more peaceful and resilient place, I say, you are heroes, and the whole world thanks you.

Disclaimer

All views and opinions expressed herein are entirely my own as the author of this work, unless expressly stated to be otherwise, and they in no way represent any of the organisations, enterprises or publishers with which I am affiliated or with which I have any professional connection.

Parts I and II of this book are based on the research carried out by me as part of my PhD thesis, in which selected portions of two parts herein have appeared previously:

'Khalil Dindarian (2018), Exploring Enterprise Resilience through the Theoretical Lens of Complexity: a case study situated in the high value manufacturing sector', University of Manchester. This thesis can be found at the University of Manchester's official repository by following this link:

https://research.manchester.ac.uk/en/studentTheses/exploring-enterprise-resilience-through-the-theoretical-lens-of-c

Preface

Why do we need a new book about Resilience?

The idea of this book originated with the main research problem crystallised from my PhD research study (Dindarian, 2019), ‘Exploring Enterprise Resilience through the Theoretical Lens of Complexity’, and from my experience of more than 30 years of practice within a high-value engineering company operating in the global business environment.

The original plan was to publish the results of my PhD research in the form of papers in different academic journals, after duly consulting with some friends and colleagues on the matter. In the course of some fascinating discussions that I had with Prof. Dr. Jalid Sehouli[1] and Prof. Dr. Ulrich-Wilhelm Thomale [2], I learned much about the growing importance of Resilience in the medical field. Both Jalid and Ulrich gave me many ideas for further research following on from my PhD, in various knowledge domains such as medicine, politics, economics and engineering. Mike Waters[3], a communication specialist from Ireland, and one of my best friends, one day asked me, ‘Why don’t you do a book on Resilience? The current situation in the world demands such a book’. As a result, in addition to my original PhD themes, I consider two related topics, Geopolitics and Macroeconomics, both of which are responsible for the changes in the global system structure. Last but certainly not least, my dear wife Azadeh suggested doing a full book on the results of my PhD, rather than a series of academic papers. Thus, the journey of this book began.

Initially, I started writing an academic textbook with a focus on engineering and project management, which I envisaged would have academic relevance for students and lecturers. The different subject areas on which such a book would touch, however, led me to the realisation that it would be of considerable interest to other interest groups as well. The results of the research I carried out as part of my PhD are highly relevant in terms of today's global changes, given the ongoing global Covid epidemics and the Ukraine crisis, both of which have changed almost all areas of our lives, with a particularly strong impact on public health, the energy issue, political decision-making, economic development, social & family life, art & culture, sports & recreation, science, and education, among many other areas of knowledge that all have, in turn, a profound effect on human psychology, belief, nature and resources. As a result, I ended up writing for the worlds of geopolitics, macroeconomics, and other closely related topics such as healthcare, business, and finance, with the primary focus being on Enterprise[4] Resilience.

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[1] Prof. Dr. Jalid Sehouli, Medical Director of the Gynaecology Department, including the Centre of Oncological Surgery, at Berlin's Charité university hospital and author of multiple scientific articles as well as works of fiction.

[2] Prof. Dr. Ulrich-Wilhelm Thomale, Head of Paediatric Neurosurgery at the Department of Neurosurgery at Berlin's Charité university hospital and author of multiple scientific articles.

[3] Founder and Managing Director of *SkillsBar*, a communication training specialist based in Romania.

My contention in this book is that the areas of emergent strategy, resilience, complexity, and emerging risks all need to be opened up, not closed down. Now, more than ever, what is needed is a bridging between them and between their many different tendencies, not their isolation.

This book, aimed at both academics and practitioners, will show how a framework for resilience can be created, one that will help organizations in the twenty-first century not only to survive, but to thrive in the face of unexpected events and developments.

I want you, dear readers—both academics and practitioners, whatever your knowledge area—to join us in the developmental journey of this book, which I hope will also challenge you to revisit your thinking on dealing with adverse events. Hopefully, this book will strengthen you and inspire you in taking the necessary steps to make our world more resilient.

Berlin, Germany Khalil Dindarian
January 2023

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[4] The term 'enterprise' is used for all types of companies, communities, associations and unions of an economic, political or social nature.

Acknowledgments

No words could ever truly convey the enormous debt of appreciation I owe to those who motivated, helped, and encouraged me in the writing of this book, especially Mike Waters, who encouraged me to undertake the project in the first place, along with various other friends and family members.

Indeed, I would like to express my deepest gratitude and thanks to all my friends for their motivation and support. Special thanks are due to Guido Bosch, Dr. Wolfgang Kreischer, Prof. Dr. Jalid Sehouli, and Prof. Dr. Ulrich-Wilhelm Thomale, for their valuable discussion and feedback.

I am most grateful to my all supporters, to those who participated in my in-depth and semi-structured interviews, and to all the participants in my questionnaires, without whose support this work could not have happened. Thank you all for your time and effort from the bottom of my heart!

A debt of sincere gratitude is also due to the publishers of this book, Springer, especially to Executive Editor Dr. Prashanth Mahagaonkar and his team, for all their help, motivation, and guidance and for allowing me the benefit of their vast combined experience.

Last but most certainly not least, special thanks are due to my family, especially my dear, lovely wife for her endless support, encouragement, and motivation throughout this journey. Thank you, Azadeh, for all the discussions and for your valuable feedback, for your patience whenever I was preoccupied, and for always being there for me.

Finally, my darling child, you were, are and always will be my greatest inspiration. This work could never have been completed without your encouragement, kind words and, of course, constant smile. You wished me to dedicate this book to everyone else but you, but for this selflessness, you deserve even more credit and thanks.

Khalil Dindarian
Berlin, January 2023

Introduction

Why do we need to understand the concept of 'Enterprise Resilience'?

Our world is changing more dynamically and faster than ever before, becoming ever more complex in the process. Among the issues currently facing mankind, with serious ramifications for our future, are digitalization and the socio-technical system, climate change and new global competition, namely, geopolitics and macroeconomics. Political upheaval, military conflict, natural disasters and economic recessions have all had massive negative impacts on private lives, governments and organizations.

All of this happens because of the increasing complexity of the global network. How well we can deal, or at least cope, with this complexity is uncertain. One thing that is beyond question, however, is that how we handle all these challenges is critical. The dynamic changes resulting from this high degree of complexity in turn give rise to emergent risks that require an effective emergent strategy. All of this presents new—and monumental—tasks for business and political leaders, economists, the medical profession, virologists, sociologists, technology innovators, engineers, managers and other professional groups.

In 2020, the world was faced with one of the most adverse events in modern human history, the COVID-19 pandemic. It was not the first such event of its kind, but it was arguably the worst. We have had similar issues such as the SARS, Swine Flu and Ebola epidemics, the Lehmann Brothers crash, the 9/11 terrorist attacks in the USA and a plethora of terrorist attacks in Europe, Africa and the Middle East, to name but a few. As a result of geopolitical and macroeconomic changes, we have recently borne witness to the Ukraine conflict, which is drawing the world into further crisis, reminding us of the enormous importance of energy and food distribution in the global world. The ongoing global Covid-19 epidemic and Ukraine crisis have not only cost millions of lives but also have wrought havoc on our social, political, healthcare and economic systems. The new global competition operating under the umbrella of geopolitics and macroeconomics is of paramount importance. All these events were unexpected, so-called interrelated emerging risks, created by man or nature, or a combination of both. Such unexpected events can and do disrupt the global dynamic system and its behaviour. Therefore, a systemic-thinking approach is proposed as a way of seeing the behaviour of the entire system, rather than as just one part of it. It is in this light that the area of Resilience is considered.

The greatest emergent risks in today's troubled world are related to the Covid pandemic and Ukraine crises, with the massive economic fallout from both the pandemic and the West's sanctions on Russia having to be tackled. Organisations need even more support so they can cope with such emerging risks, improve strategic direction and ensure business continuity. Ultimately, only resilient companies will overcome the uncertainty of today's global business environment and survive events like epidemics and political crises, with relatively small losses; some will even benefit from them. It is, therefore, of critical importance to make Resilience a part of our strategic plan and incorporate consideration of the emerging risks in our strategic decision-making process. The first question on which we must focus, therefore, is how we can identify those emerging risks. From there, we need to ask ourselves how we can assess those risks and then embed the findings of our assessment in strategic management and decision-making processes.

Organisations are increasingly seeking to improve their resilience through a more sophisticated approach to the analysis of corporate intelligence. We may refer to this as 'the holistic approach' and address the question of how organisations may adopt a holistic approach to the execution of strategy through a nuanced understanding of 'complexity thinking'. I would argue that a significant knowledge-to-practice gap exists here, despite the existence of a rich landscape of theoretical literature embracing complexity theory, strategy, risk, uncertainty and enterprise risk management.

Today, more than ever, enterprises are facing emergent risks and uncertainties in a fast-changing world where complex environmental changes are constantly taking place. For this very reason, we will make the case for a greater emphasis on resilience within organisations; this is generally understood to be flexibility, adaptability and the ability to self-organise in response to constantly updated information gleaned from that organisation's interaction with the geopolitical and macroeconomic environments.

The current complexity of the global business environment and the high rate of change both create a potentially dangerous level of uncertainty, with a negative impact on business continuity. If an organisation is to stand a realistic chance of survival in the face of unexpected events, it will need to have prepared itself for such events taking into consideration what it knows is happening around it, both locally and globally, and to have made its preparations accordingly. As its environment changes, it must be able to change with it. Traditionally, risk processes and conventional enterprise risk management are designed in a static way, in readiness for foreseen and anticipated events. They cannot, however, be relied upon for dealing with an uncertain environment and for preparing one for unforeseen events and occurrences.

During the course of my PhD studies, a Process, Organisational, Environmental and Technological (POET) Complexity Framework emerged, which can be used to assess people's knowledge of complexity and its application in practice. Practitioners and academics can use this Complexity Framework to help them better understand the impact of risk and uncertainty on an operational level such as in a multi-project environment, thus enabling the formulation of an effective operational emergent strategy. It is an appropriate methodology that recognises the interconnectedness of risks, which can enable practitioners to interrelate emerging risks through robust analytical methods. The POET Framework also offers the ability to assess further aspects of an organisation, such as Enterprise Resilience or Organisational Resilience. This is argued as a bottom-up approach, with decision-making being at micro level.

Furthermore, in proposing an Organisational Resilience Framework for enterprise resilience, this book will outline a number of organisational resilience categories. From this, it is hoped that both academics and practitioners can benefit in terms of an assessment of Organisational Resilience in practice. On top of that, the application of the proposed frameworks can provide responses to unexpected incidents through the sharing of strategic thinking, thereby aligning the top-down and bottom-up approaches, and the sharing of decision-making authority throughout an organisation.

Finally, I want to highlight the fact that the provided Enterprise Resilience Framework (ERF), designed to make sense of Complexity Thinking, lies at the heart of ‘holism’, a key concept in Enterprise Risk Management (ERM) processes, and can be used to support the executive decision-making process in practice.

The modern business environment, characterised by unprecedented growth in the use of digital technologies, presents new challenges to organisations, particularly in the context of the management of risk and uncertainty. Capturing the necessary intelligence required to properly inform corporate decision-making lies at the heart of an organisation’s capabilities for developing and deploying effective strategies.

An effective emergent strategy is characterised by Resilience, which refers to the characteristics of strategic management and their relationship to Resilience. It also concerns environmental changes, such as unexpected events that can have an impact on an organisation and the ways that corporate, business and operations units are adapting their strategy to cope with such changes. In this regard, I believe it would be useful to describe the characteristics of strategic management and the critical factors in strategic decision-making, the relationship between Strategy and Resilience, and finally, the relationship between Strategy and ERM.

Resilience is concerned with Emergence, which is in turn a characteristic of Complexity, an emergent property that concerns a system’s ability to deal with high levels of uncertainty. Resilience can, in effect, be described as the ability of a system to adapt to a threat and can ultimately be seen as an emergent and adaptive process.

This book shows the application of what is referred to as Complexity Thinking (a holistic view) to enterprise risk-management processes, thus enabling a greater understanding of the concept of ERM processes and their application in practice. In addition, it offers a way of dealing with emerging risks, and this can change the strategic direction of companies.

There are differences, it can be strongly argued, between conventional ERM and Enterprise Resilience, an understanding of which differences is vital. It is this that provides a methodology for the integration of emergent risks with strategic risk, and for recognising their interconnectedness so that practitioners will be able to interrelate emerging risks through robust analytical methods.

In this light, one of our main objectives is to present an Enterprise Resilience Framework (ERF) suitable for the purposes of establishing Organisational Resilience, for countering those risks that can affect business activities to such an extent that a company suffers considerable damage or even faces an existential threat. The appropriate implementation of an ERF can ensure business continuity, improve company performance, and allow competitive advantage to be maintained, in turn protecting stakeholder interests and the corporate reputation and brand, and maintaining—or even increasing—share value.

Increased attention to business continuity and changes in times of uncertainty has highlighted several questions that have been of concern to both academia and practice: How can an organisation adapt its strategy in the face of changes in order to ensure business continuity? How can Complexity Theory support the concept of a Resilient Organisation? How can an organisation embed Complexity Thinking into its ERM processes, to enhance and strengthen Organisational Resilience? What tools may be used to assess the extent of Complexity that must be addressed, and to help determine how Complexity Thinking may be incorporated into ERM processes?

In this book, we will draw on information from my PhD study, including both the literature that formed the basis of the thesis and the findings of my research. Methods of building Enterprise Resilience through the theoretical lens of complexity will be presented. This will, hopefully, allow us to gain a better insight into the underlying theory and, in the process, explore a range of relevant topics. While considering what has already been done in the field, we will identify some of the information sources other researchers have used and discuss remaining gaps in the body of theoretical knowledge.

As a first step, we will look at Complexity Theory with the purpose of presenting to the reader various aspects of the knowledge area of Complexity, so that he may better understand both its theory and its practical application.

In this new and complex world, it is evident that governments and organizations—both public and private—must learn to anticipate emergent risks and deal with them. The integration of emergent risks with strategic risk as well as the management of 'black swan' events has assumed paramount importance. This is the huge challenge now facing senior managers, political leaders, economists, scientific and technical innovators, engineers, the medical profession, and other professional and management groups. The traditional ERM approach of dealing with risks in isolation is no longer valid in itself; the paradigms have now shifted, and a new all-encompassing, emergent strategy must be developed at operational as well as strategic level, that will cover all emerging risks under the umbrella of Complexity, thus creating the new level of protection that we call Resilience. This book, aimed at both academics and practitioners, will show how a framework for Resilience can be created, one that will help organizations in the twenty-first century not only to survive, but also to thrive.

This book is divided into three main parts. The first, from an academic viewpoint, considers the existing disciplines in the scientific field. Given its theoretical nature, it sets out to describe the pedigree of the topics presented. In essence, it offers evidence about how we can embed complexity thinking into our decision-making processes. Both natural and man-made disasters have had a major impact on complex environmental changes. Consequently, corporate, business, and operational units are adapting their strategy to those undesirable changes. The ability to make decisions for this strategy—which decisions are referred to as Effective Emergent Strategies—becomes paramount for business continuity both during and after negative complex environmental changes.

The second part is concerned with practical application of the theory through case studies. On the one hand, a bottom-up research study is presented. The complexity of delivering a portfolio is discussed, particularly how a high-value engineering portfolio design can meet the requirements of external stakeholders. The ability of an organisation to deal with complexity is researched, using this case study as an illustration. Furthermore, this part of the book outlines the application of ERM (enterprise risk management) in practice, with the focus being on (i) Strategic risk management, (ii) Decision-making processes, (iii) Dealing with unexpected changes, and the application of 'Emergent Strategy', and (iv) The selection of a project portfolio as well as the use of the concept of organisational resilience in practice.

The second part goes on to link the academic implications of the book with practical application and examines how the application of organisational resilience, both in general and in the industrial sphere specifically, is addressed. This chapter offers recommendations for the implementation of a conceptual organisational resilience framework in practice, and moreover, it offers ideas for future academic research and study.

In the third and final part, we will examine from a more practical perspective the everyday issues that seem to be never-ending: in essence, geopolitics and macroeconomics, and their attributes with which we are confronted every day, either directly or indirectly, in a positive or negative way. The primary focus is on uncertainty and change in the processes of both geopolitics and macroeconomics. Part three, in essence, takes a closer look at the complexity of both systems and the structural and behavioural changes affecting them. Such changes are the result of the dynamics and volatility of the elements of the two systems, such as political power and decision-making, increases in world population and demographics, the disproportionate use of natural resources (particularly water and food), increasing energy demand, the availability, use and distribution of other resources, and land use for agricultural production and its impact on health. Other factors include the unequal ratio of global agricultural labour force to total population, and disproportionate consumption of food, water, energy and other resources. These are the most important factors within the geopolitical and macroeconomic systems; however, there are further important factors, such as healthcare, education, industrial development, commerce, services, finance and global politics.

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Abbreviations

ANZUS	Australia, New Zealand, United States Security Treaty
BRICS	Five leading emerging economies: Brazil, Russia, India, China, and South Africa
BSI	British Standards Institute
CAD	Computer Aided Design
CAS	Complex Adaptive System
CCTV	Close Circuit Television
COSO	Committee of Sponsoring Organisations of the Treadway Commission
CPU	Central Processing Unit
DfT	Department for Transportation
DMU	Diesel Multiple Unit
EHS	Environment, Health & Safety
ENIAC	Electronic Numeric Integrator And Computer
EOB	Employee-owned Business
ERF	Enterprise Resilience Framework
ERM	Enterprise Risk Management
EVA	Economic Value Added
GDP	Gross Domestic Product
GNP	Gross National Product
GPS	The Global Positioning System
ICOR	International Consortium for Organisational Resilience
ICT	Information and Communications Technology
LCC	Life Cycle Cost
NATO	The North Atlantic Treaty Organization
NGO	Non-Governmental Organization
OPEC	The Organization of the Petroleum Exporting Countries
PPM	Project Portfolio Management
QFD	Quality Function Deployment
RAMS	Reliability, Accountability, Maintainability & Safety
RKI	Robert Koch Institute
SRA	Strategic Rail Authority
SRM	Strategic Risk Management

STIKO	Standing Committee on Vaccination
UNESCO	The United Nations Educational, Scientific and Cultural Organization
UNHCR	The UN Refugee Agency
UNICEF	The United Nations International Children's Emergency Fund
UNIVAC I	Universal Automatic Computer I
US GAAP	US Generally Accepted Accounting Principles

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